



# FOREST PEST FACT SHEET



## NEEDLE DISEASES LARCH, DOUGLAS-FIR, AND TRUE FIRS



Needle diseases are caused by fungi that attack needles and cause needle spots or entire needles to quickly turn yellow or brown. Most needle diseases appear in early spring and usually affect only one age class of needles, most often the needles produced during the previous growing season. Needle diseases are very noticeable because the symptoms usually appear on the branch tip needles. The symptoms of needle diseases become less obvious as summer progresses, new growth emerges, and diseased needles are shed. Outbreaks of needle diseases occur sporadically and are often associated with cool damp weather patterns during the growing season before the outbreaks. Severe outbreaks can cause growth loss proportional to the defoliation. Mortality is rare, except in the case of continued outbreaks on seedlings and small saplings. Specific needle diseases usually affect only one or a limited number of closely related tree species.

### Life Cycle

The life cycles of needle diseases vary by causal agent. In general, fungal spores produced on older infected needles infect new needles as they emerge in the spring. The fungi continue to grow within the infected needles but symptoms such as discolored needles, needle spots or bands, and dead needles or needle tips usually do not appear until the spring following infection. On larch, they appear soon after infection. Spores are produced about the same time as needle symptoms appear. Disease severity varies widely by year and individual host species.

### Management

Needle diseases are native diseases and little can be done operationally to control them. They are often a problem when trees are growing near the edge of their environmental range. When planting trees, select species and seed sources that are suitable and match the environmental conditions of the planting site. Avoid collecting seed from infected (symptomatic) trees. Thinning dense forests will open the canopy, increase air movement, and may reduce the severity of future outbreaks. Spraying fungicides to control needle disease is not practical in forests. Fungicides are a management option for ornamentals, windbreaks, and Christmas tree plantations. Consult a plant pathologist or other forest health specialists before applying a fungicide. Follow all labels and labeling when applying any pesticide.

#### For more information:


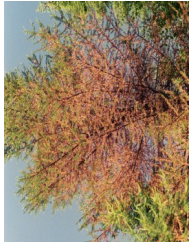




IDL website: [http://www.idl.idaho.gov/bureau/ForestAssist/state\\_forester\\_forum.htm#id](http://www.idl.idaho.gov/bureau/ForestAssist/state_forester_forum.htm#id)

U.S. Forest Service Management Guide: [https://fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5186684.pdf](https://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5186684.pdf)





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NEEDLE DISEASE	HOSTS	SIGNS & SYMPTOMS	SIGNS & SYMPTOMS	TYPICAL DAMAGE	MANAGEMENT STRATEGY
<b>Larch needle cast</b> 	Western larch	Yellow & brown spots & bands on individual needles		Needle spots, growth loss with severe and recurring infections	Avoid moving seed sources from higher to lower elevations. Match seed source with planting site.
<b>Larch needle blight</b> 	Western larch	New needles turn red then brown & remain on the tree. Dead needles develop black spots		Red to brown needles, growth loss with severe & repeated infections	Match seed source with planting site. Harvest symptomatic trees
<b>Rhabdocline needle</b> 	Douglas-fir	Small yellow spots on last year's needles turn brown in spring		Yellow & brown needles, infected needles are often shed	Avoid regenerating Douglas-fir in low lying areas with poor air drainage. Harvest symptomatic trees
<b>Swiss needle cast</b> 	Douglas-fir	Previous year's needles turn yellow in spring. Very small black spots on underside of needles		Yellow needles remain on tree. Severe growth loss with repeat infection	Reduce percentage of Douglas-fir growing on moist sites.
<b>Fir needle diseases</b> 	Grand fir, Subalpine fir	Yellow to brown needle spots, dead needles, black spots or light colored pustules underside of needles		Dead or spotted needles, thin crowns, no mortality	Remove symptomatic species & trees